Amendments to the Claims:

1-15. (Cancelled).

16. (Currently Amended) A field bus adapter for transmitting and receiving control data from a field bus network where data is being exchanged according to a specific field bus protocol, said adapter comprising:

a transmitter for transmitting data to the field bus network and

a receiver for receiving data from the field bus network, and

a protocol detector adapted for detecting a field bus protocol between a number of predefined field bus protocols and for setting up the receiver and the transmitter for communicating according to said detected field bus protocol,

wherein said protocol detector comprises:

means for receiving data comprised of a number of fields from the field bus,

means for determining if the received data complies with predefined characteristics stored in a database, said characteristics uniquely identifying data of only one of said number of predefined field bus protocols, [[and]]

means for repeating detection of field bus protocols from among said number of predefined field bus protocols as long as characteristics exist which uniquely identify a protocol from a remaining number of said predefined protocols,

means for setting up the receiver and the transmitter for communicating according to said one protocol, if said received data complies with said characteristics, and

means for periodically performing field bus detection at predefined intervals.

17. (Previously Presented) A field bus adapter according to claim 16, wherein the protocol detector is adapted for detecting two predefined field bus protocols, the protocol detector comprising

means for receiving data from the field bus,

means for determining if the received data complies with predefined characteristics stored in a database, said characteristics uniquely identifying data of a first of said two predefined field bus protocols,

means for setting up the receiver and the transmitter for communicating according to the first predefined field bus protocol, if the received data complies with said characteristics, and

means for setting up the receiver and the transmitter for communicating according to a second of said two predefined field bus protocols, if said received data does not comply with said characteristics.

18. (Currently Amended) A field bus adapter according to claim 16, ~~wherein said data are received in data frames comprising a number of fields, and~~ wherein said characteristics uniquely identify data frames of one of said number of predefined field bus protocols.

19. (Previously Presented) A field bus adapter according to claim 18, wherein said characteristics uniquely identifying a data frame comprise characteristics of the content of specific fields in the data frame.

20. (Previously Presented) A field bus adapter according to claim 19, wherein said characteristics uniquely identifying a data frame comprise characteristics of the length of a data frame.

21. (Previously Presented) A field bus adapter according to claim 19, wherein the predefined protocol is detected based on more than one data frame.

22. (Previously Presented) A field bus adapter according to claim 17, wherein the first field bus protocol is Profibus and the second field bus protocol is Foundation Fieldbus.

23. (Previously Presented) A field bus adapter according to claim 22, wherein the characteristics uniquely identifying a Foundation Fieldbus comprise characteristics of the content of the first field in the data frame and of the length of the data frame.

24. (Previously Presented) A field bus adapter according to claim 16, wherein the control data to be transmitted is a value representing a measured physical value.

25. (Previously Presented) A field bus adapter according to claim 24, wherein said adapter comprises means for measuring said physical value.

26. (Currently Amended) A method of transmitting and receiving control data from a field bus network where data is being exchanged according to a specific field bus protocol using adapter comprising a transmitter for transmitting data to the field bus network and a receiver for receiving data from the field bus network, a protocol detector adapted for detecting a field bus protocol between a number of predefined field bus protocols and for setting up the receiver and the transmitter for communicating according to said detected field bus protocol, said method comprising the steps of:

receiving data comprised of a number of fields from the field bus,

determining if the received data complies with predefined characteristics stored in a database, said characteristics uniquely identifying data of only one of said number of predefined field bus protocols, [[and]]

repeating field bus detection for a number of protocols as long as characteristics exist which are uniquely identifying a protocol from a remaining number of predefined protocols,

setting up the receiver and transmitter for communicating according to said one protocol, if said received data complies with said characteristics, and

periodically performing field bus detection at predefined intervals.

27. (Previously Presented) A method according to claim 26, wherein two predefined field bus protocols are detected, wherein

said determining step comprises determining if the received data complies with predefined characteristics stored in a database, said characteristics uniquely identifying data of a first of said two predefined field bus protocols,

said setting step comprises setting up the receiver and transmitter for communicating according to the first of said two predefined field bus protocols, if the received data complies with said characteristics.

said setting step comprises setting up the receiver and transmitter for communicating according to a second of said two predefined field bus protocols, if said received data does not comply with said characteristics.

28. (Previously Presented) A method according to claim 26, wherein the step of detecting the field bus protocol and setting up the receiver and the transmitter for communicating according to the detected field bus protocol is only performed in an initialization phase before transmitting and receiving control data via said field bus network.

29. (Cancelled).

30. (Currently Amended) A storage medium having stored thereon instructions for performing the method of transmitting and receiving control data from a field bus network where data is being exchanged according to a specific field bus protocol using an adapter comprising a transmitter for transmitting data to the field bus network and a receiver for receiving data from the field bus network, a protocol detector adapted for detecting a field bus protocol between a number of predefined field bus protocols and for setting up the receiver and the transmitter for communicating according to said detected field bus protocol, said method comprising the steps of:

receiving data from the field bus,

determining if the received data complies with predefined characteristics stored in a database, said characteristics uniquely identifying data of only one of said number of predefined field bus protocols, [[and]]

repeating field bus detection for a number of protocols as long as characteristics exist which uniquely identify a protocol from a remaining number of predefined protocols,

setting up the receiver and transmitter for communicating according to said one protocol, if said received data complies with said characteristics; and

periodically performing field bus detection at predefined intervals.